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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/922,650

08/07/2001

Jeffrey M. Voas

CIG-102

9193

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7590

04/22/2004

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EXAMINER

IQBAL, NADEEM

ART UNIT

PAPER NUMBER

2114

DATE MAILED: 04/22/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/922,650

Applicant(s)

VOAS ET AL.

Examiner

Nadeem Iqbal

Art Unit

2114

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 07 August 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-26 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-26 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 112*

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claim 10 recites the limitation "determined period" in line 1. There is insufficient antecedent basis for this limitation in the claim.
3. Claim 11 recites the limitation "determined period" in line 1. There is insufficient antecedent basis for this limitation in the claim.
4. Claim 17 recites the limitation "second pre-determined periods" in line 1. There is insufficient antecedent basis for this limitation in the claim.
- 5.

### *Claim Rejections - 35 USC § 102*

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 1-5 are rejected under 35 U.S.C. 102(b) as being anticipated by Subrahmaniam et al., (U.S. Patent number 5671352).
1. As per claim 1, Subrahmaniam et al., teaches (col. 1, lines 43-47) a method and apparatus for a dynamic error injection mechanism used in conjunction with a behavioral simulator in testing hardware and software. He also teaches (col. 55-60) a command referred as "inject error" used to specify errors to be tested and the address range to be tested. He thus teaches limitations

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pertain to injecting a first data state anomaly into the software system. He also teaches (col. 2, lines 17-20) that the present invention enables users to not only test errors at will during any point of execution of the simulated system but to also specify the error type and address range to be used. He thus teaches limitations pertain to running the software system after the data state anomaly has been injected, checking for an unacceptable output if an unacceptable output is observed. He also teaches (col. 1, lines 63-65) to log the error and address range. He thus teaches limitations pertain to logging the unacceptable output if an unacceptable output is observed.

8. As per claim 2, He teaches (col. 2, lines 20-23) that the invention provides for a dynamic error testing capability to test error handling code and allows for testing of a broad range of errors and addresses. He thus would clearly teach a system adaptable for safety-critical system comprising a hazardous output.

9. As per claim 3, He also teaches (col. 2, lines 17-20) that the present invention enables users to not only test errors at will during any point of execution of the simulated system but to also specify the error type and address range to be used. His system is thus clearly adaptable to systems comprising web site system.

10. As per claims 4 & 5, He teaches as stated above per claim 2, that the invention provides for a dynamic error testing capability to test error handling code and allows for testing of a broad range of errors and addresses. Thus would include testing for undesired output.

### ***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 6-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Subrahmaniam et al., (U.S. Patent number 5671352) in view of Tierney et al., U.S. Patent number 5513315).

4. As per claim 6, Subrahmaniam teaches (col. 2, lines 17-20) that the present invention enables users to not only test errors at will during any point of execution of the simulated system but to also specify the error type and address range to be used. He also teaches (col. 2, lines 20-23) that the invention provides for a dynamic error testing capability to test error handling code and allows for testing of a broad range of errors and addresses. He does not explicitly disclose that the unacceptable output comprises an unsafe shutdown of the software system. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to realize that the unacceptable output would comprise an unsafe shutdown was claimed, since He teaches error testing capability to test error handling code and allows for testing of a broad range of errors and addresses, thus allowing a person of ordinary skill in the art to test for an output that comprises an unsafe shutdown of the software system.

5. As per claims 7 & 9, He teaches (col. 1, lines 55-57) that the method of the invention provides several commands to control the kernel that is running at the user interface level and once such existing command enables the user to stop the simulation at any point of its execution. He thus teaches capability to stop the software system.

6. As per claim 8, He teaches (col. 2, lines 17-20) that the present invention enables users to not only test errors at will during any point of execution of the simulated system but to also

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specify the error type and address range to be used. He thus provides the ability to use a second data state anomaly different than the first data state anomaly.

7. As per claims 10 & 11, He also teaches (col. 2, lines 17-20) that the present invention enables users to not only test errors at will during any point of execution of the simulated system but to also specify the error type and address range to be used. He thus would allow a pre-determined period that comprises a time period.

8. As per claim 12, He teaches as stated per claim 1 above, a command referred as "inject error" used to specify errors to be tested and the address range to be tested. He thus teaches limitations pertain to inserting an assertion into the software system.

9. As per claim 13, He teaches (col. 5, lines 30-33) that the user is notified of whether or not the error handler was able to handle the particular error generated. He also teaches (col. 5, lines 34-36) that if the error to be tested is a correctable error and if the error handler is working correctly, the normal operation should resume after the error handler has completed its execution. He thus teaches to insert a corrective action into the software system responsive to the assertion.

10. As per claim 14, Subrahmaniam et al., substantially teaches the claimed invention as disclosed related to claim 1 above. He also teaches (col. 3, lines 29-32) that the injection of errors may be performed at any time during which simulated system is in execution. He thus teaches limitations pertain to initializing the software system, running the software system. He also teaches (col. 55-60) a command referred as "inject error" used to specify errors to be tested and the address range to be tested. He thus teaches limitations pertain to injecting a first data state anomaly into the software system. He also teaches (col. 2, lines 17-20) that the present

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invention enables users to not only test errors at will during any point of execution of the simulated system but to also specify the error type and address range to be used. He thus teaches limitations pertain to running the software system after the data state anomaly has been injected, checking for an unacceptable output if an unacceptable output is observed. He also teaches (col. 1, lines 63-65) to log the error and address range. He thus teaches limitations pertain to logging the unacceptable output if an unacceptable output is observed. He does not explicitly disclose that the unacceptable output comprises an unsafe shutdown of the software system. He also teaches (col. 2, lines 20-23) that the invention provides for a dynamic error testing capability to test error handling code and allows for testing of a broad range of errors and addresses. It would have been obvious to a person of ordinary skill in the art to realize that the unacceptable output would comprise an unsafe shutdown was claimed, since He teaches error testing capability to test error handling code and allows for testing of a broad range of errors and addresses, thus allowing a person of ordinary skill in the art to test for an output that comprises an unsafe shutdown of the software system.

11. As per claim 15, He teaches (col. 2, lines 17-20) that the present invention enables users to not only test errors at will during any point of execution of the simulated system but to also specify the error type and address range to be used. He thus provides the ability to use a second data state anomaly different than the first data state anomaly.

12. As per claim 16, He also teaches (col. 2, lines 17-20) that the present invention enables users to not only test errors at will during any point of execution of the simulated system but to also specify the error type and address range to be used. He thus would allow a pre-determined period to be changed.

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13. As per claims 17 & 18, He also teaches (col. 2, lines 17-20) that the present invention enables users to not only test errors at will during any point of execution of the simulated system but to also specify the error type and address range to be used. He thus would allow first and second pre-determined periods comprising time periods.

14. As per claim 19, He teaches as stated per claim 1 above, a command referred as “inject error” used to specify errors to be tested and the address range to be tested. He thus teaches limitations pertain to inserting an assertion into the software system.

15. As per claim 20, He teaches (col. 1, lines 63-65) to log the error and address range. He thus teaches limitations pertain to logging the hazardous output

11. As per claim 21, He also teaches (col. 2, lines 17-20) that the present invention enables users to not only test errors at will during any point of execution of the simulated system but to also specify the error type and address range to be used. He thus would include a time stamp.

16. Claims 22-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Subrahmaniam et al., (U.S. Patent number 5671352) in view of Sanchez et al., U.S. Patent number 6477666).

12. As per claims 22 & 25, Subrahmaniam does not explicitly disclose that the plurality of information comprises an iteration count. Sanchez teaches (col. 2, lines 55-60) that determination is made of whether and when one of the respective faults be injected and an exception is automatically and timely triggered to inject a respective fault by the automatic fault injector at a corresponding location when the corresponding location has been reached and when it has determined that the respective fault should be injected at an appropriate time. He thus would include an iteration count. It would have been obvious to a person of ordinary skill in the art to



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include the invention of Sanchez into the system of Subrahmaniam, since Sanchez invention provides a desirable advantage of being able to determine whether and when one of the respective faults be injected, thus providing motivation for the stated inclusion.

17. As per claim 23, Subrahmaniam teaches (col. 2, lines 20-23) that the invention provides for a dynamic error testing capability to test error handling code and allows for testing of a broad range of errors and addresses. He thus would include a first data state anomaly.

18. As per claim 24, Sanchez teaches (col. 2, lines 55-60) that determination is made of whether and when one of the respective faults be injected and an exception is automatically and timely triggered to inject a respective fault by the automatic fault injector, therefore would provide a time stamp.

19. As per claim 26, Subrahmaniam teaches (col. 1, lines 61-65) that a range of addresses may also be specified within which to test the errors and when such a commands is issued the system logs the error and address range. It would have been obvious to a person of ordinary skill in the art to realize that Subrahmaniam also performs the step of analyzing the information in the log file to determine a safe operating period, since he specifies a range of addresses within which to test the errors and logs the address range.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nadeem Iqbal whose telephone number is (703)-308-5228. The examiner can normally be reached on M-F (8:00-5:30) First Friday Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert W Beausoliel can be reached on (703)-305-9713. The fax phone numbers for

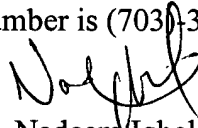
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the organization where this application or proceeding is assigned are (703)-746-7239 for regular communications and (703)-746-7238 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)-305-3900.



Nadeem Iqbal  
Primary Examiner  
Art Unit 2184

NI  
April 17, 2004